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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
	)	
Allocation and Designation of Spectrum	)	
for Fixed-Satellite Services	)	IB Docket No. 97-95
in the 37.5-38.5 GHz, 40.5-41.5 GHz,	)	
and 48.2-50.2 GHz Frequency Bands;	)	RM-8811
Allocation of Spectrum to Upgrade Fixed	)	
and Mobile Allocations in the 40.5-42.5	)	
GHz Frequency Band; Allocation of	)	
Spectrum in the 46.9-47.0 GHz Frequency	)	
Band for Wireless Services; and Allocation	)	
of Spectrum in the 37.0-38.0 GHz and	)	
40.0-40.5 GHz for Government Operations.	)	

To: The Commission

COMMENTS OF SKYBRIDGE L.L.C.

SkyBridge L.L.C. ("SkyBridge"), by its attorneys, hereby submits these comments in response to the Notice of Proposed Rulemaking ("NPRM") in the above-captioned matter.[1/] SkyBridge recently filed an application with the Commission for authority to launch and operate the "SkyBridge System," a global network of nongeostationary orbit ("NGSO") communications satellites operating at Ku-band, designed to provide

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1/ In the Matter of Allocation and Designation of Spectrum for Fixed-Satellite Services IB Docket No. 97-95 in the 37.5-38.5 GHz, 40.5-41.5 GHz, and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations, FCC 97-85, released March 24, 1997 ("NPRM").

broadband services in the Fixed-Satellite Service ("FSS").[2/] Although SkyBridge does not propose to operate in the bands that are the subject of this proceeding, a key feature of the SkyBridge System -- its ability to share spectrum with other systems -- is directly relevant to one of the primary issues that confronts the Commission in the instant proceeding: whether to "segment" the 38 GHz bands among terrestrial systems, geostationary orbit ("GSO") systems, and NGSO systems, as was done in the 28 GHz band.

In the NPRM, the Commission proposes certain reallocations of millimeter wave band frequencies to accommodate various proposed systems. The NPRM demonstrates, inter alia, the difficulties faced in providing "clean" spectrum for new systems, and proposes to designate separate sub-bands for different types of services. In justifying this approach, the Commission explains that, "[g]iven the ubiquitous nature of some of the services proposed, it is not likely that satellite and terrestrial systems will be able to share the same spectrum without significant technical constraints on the operations of one or the other, or both, types of systems."[3/] Nonetheless, the Commission requests comment on the sharing capabilities of satellite systems,[4/] and the extent to which flexible uses can be accommodated.[5/]

2/ In the Matter of the Application of SkyBridge L.C.C. for Authority to Launch and Operate a Global Network of Low Earth Orbit Communications Satellites Providing Broadband Services in the Fixed Satellite Service, File No. 48-SAT-P/LA-97, filed February 28, 1997.

3/ NPRM at 6.

4/ See, e.g., NPRM at 11.

5/ See, e.g., NPRM at 7, 12.

The Commission's most recent experience regarding the issue of GSO/NGSO/terrestrial sharing took place in the context of the 28 GHz Proceeding.[6/] There, the Commission properly concluded that, as a consequence of their particular respective designs, many of the various systems then under consideration were incapable of sharing. The crucial fact that compelled the Commission's conclusion in that regard is that none of the systems in the 28 GHz Proceeding was designed to share spectrum; indeed, at least with respect to the various satellite systems, they were designed with exactly the opposite assumption in mind.

In the instant proceeding, the Commission should begin with the fact that the outcome in the 28 GHz Proceeding was preordained not by some immutable physical law, but by the specific design characteristics of the systems there at issue -- none of which was designed specifically to facilitate spectrum sharing. SkyBridge urges the Commission to recognize that the capability of a given NGSO system to share spectrum with GSO and terrestrial systems is largely a function of the NGSO system's architecture. Put simply, if the Commission desires to maximize the efficiency with which both satellite spectrum allocations and available orbital space are utilized in the 38 GHz band -- i.e., make the best possible use of the scarce spectrum and orbit resources -- steps can be taken by system designers to achieve that goal.

The SkyBridge System is an example of a system designed from the start to be capable of sharing with existing systems. It does not require either a new allocation or an

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6/ In the Matter of Rulemaking to Amend Parts 1, 2, 21 and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, 3 Comm. Reg. (P&F) 857 (1996).

exclusive license to use particular frequencies. Rather, SkyBridge proposes to operate in the Ku-band, on a non-exclusive basis, by protecting both GSO systems and terrestrial networks operating at the same frequencies. The SkyBridge System will not degrade the quality of service or availability of GSO or terrestrial links, and will impose no operational constraints on operators of these systems. SkyBridge achieves these goals by, inter alia, switching off spot-beams to avoid potential interference situations, and using a specific waveform, including spreading, to limit power flux densities. These and other steps ensure that the power levels contributed by SkyBridge to any GSO or terrestrial system will be well below the noise floor of the receivers of such systems. As a result, the SkyBridge System can operate co-frequency and co-coverage with GSO and terrestrial systems.

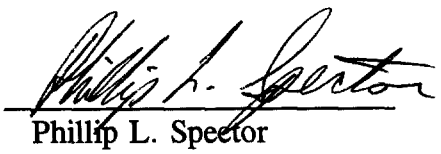
CONCLUSION

The lesson of the 28 GHz Proceeding is limited to this: systems that were never intended by their designers to share spectrum most likely cannot. What has become apparent since the conclusion of that proceeding is that systems designed with the opposite premise in mind can share spectrum. Before the Commission commits itself to a band segmentation plan in the instant proceeding, it should give serious consideration to the far

greater efficiencies and allocation flexibility that can be achieved through the implementation of state-of-the-art sharing techniques and system designs.

Respectfully submitted,

SKYBRIDGE L.L.C.

By: 

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